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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,499	07/25/2003	Scott SHERMAN	45283.93	1498

22828 7590 03/25/2005

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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,499

Applicant(s)

SHERMAN ET AL.

Examiner

John J. Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20031112.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

FIRST OFFICE ACTION

Information Disclosure Statement

1. The Information Disclosure Statement received November 12, 2003 has been considered.

An initialed form PTO-1449 is enclosed with this First Office Action.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "17" in Figure 1. In addition, the submitted drawings appear poorly drawn and labeled. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The use of trade names (e.g. Hastaloy, Inconel) is indefinite in a claim since the compositions of these alloys are not fixed and may change at the manufacturer's discretion. In addition, the broad terms "Hastaloy" and "Inconel" potentially cover an indefinite range of present alloys and also future alloys that may be developed under these terms. The relationship between a trademark or tradename and the product it identifies is sometimes indefinite, uncertain, and arbitrary. The formula or characteristics of the product may change from time to time and yet it may continue to be sold under the same trademark or tradename. In patent specifications, every element or ingredient of the product should be set forth in positive, exact, intelligible language, so that there will be no uncertainty as to what is meant. Arbitrary trademarks or trade names which are liable to mean different things at the pleasure of manufacturers do not constitute such language. *Ex Parte Kattwinkle*, 12 USPQ 11 (Bd. App. 1931).

Claim Interpretation

6. Regarding the recitation of "fuel cell interconnect" in the pending claims, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). The applied prior art, below, has the requisite structures recited in the body of the claims and therefore reads on the physical limitations of claimed articles regardless of their stated intended use. The term "comprising" in the claims allows for additional unrecited layers or structures (even additional porous layers - e.g. claim 4), *Ex parte Gottzein et al.*, 168 U.S.P.Q. 176 (PTO Bd. App. 1969). Regarding the slurry foaming process step recited in claim 10, when there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed

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products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). See MPEP 2112.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1-2, 6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Cisar (U.S. Patent 6,146,780).

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9. Cisar discloses a thin metal barrier sheet and metal foam (e.g. nickel foam) welded to both sides (e.g. see Figure 4; column 4, line 58 - column 5, line 10).

10. Claims 1-2, 6 and 8-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Vyas (U.S. Patent Application Publication 2003/0165731).

11. Vyas discloses a thin metal barrier sheet and metal foam (e.g. nickel foam) welded to both sides (e.g. see Figure 5; paragraph [0047]).

12. Claims 1-2, 6 and 8-10 are rejected under 35 U.S.C. 102(a) as being anticipated by Appleby (U.S. Patent Application Publication 2001/0026884 A1).

13. Appleby discloses a metal gas barrier sheet metallurgically bonded to metal foam and both of which may be nickel (e.g. (e.g. see paragraphs [0113], [0114], claims 1-4). Sintering forms a metallurgical bond that welds the components together.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's disclosure of the prior art in view of Dederer (U.S. Patent 5,733,675) and further in view of Cisar (U.S. Patent 6,146,780), Vyas (U.S. Patent Application Publication 2003/0165731) or Appleby (U.S. Patent Application Publication 2001/0026884 A1), and further in view of Hill (U.S. Patent 6,379,833).

16. Applicant discloses that solid oxide fuel cells in the prior art operate at high temperatures and require materials capable of withstanding these temperatures (e.g. see Background of the Invention, paragraphs [0002]-[0007]). Applicant does not disclose the use of high temperature nickel alloys for solid oxide fuel cells in the prior art, but Dederer clearly shows that high temperature nickel alloys such as Inconel are typically used in solid oxide fuel cell construction (e.g. see top of column 6). In view of Dederer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use high temperature nickel alloys such as Inconel in the construction of solid oxide fuel cell members since Dederer shows that these alloys can withstand the high temperatures used in the operation of these types of fuel cells. It is noted that Hastaloy, Haynes and Inconel are typical trade name high temperature commercial nickel alloys used in industry. Barring evidence to the contrary, selection of particular commercial alloys for specific applications is a mere matter of engineering choice of the skilled artisan in optimizing the materials for particular industrial applications. Applicant's description of the prior art does not disclose that fuel cell interconnects can be formed from a porous metal layer combined with a barrier plate, but this construction for fuel cells is quite conventional in

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the prior art. Cisar discloses a thin metal barrier sheet and metal foam (e.g. nickel foam) welded to both sides (e.g. see Figure 4; column 4, line 58 - column 5, line 10). Vyas discloses a thin metal barrier sheet and metal foam (e.g. nickel foam) welded to both sides (e.g. see Figure 5; paragraph [0047]). Appleby discloses a metal gas barrier sheet metallurgically bonded to metal foam and both of which may be nickel (e.g. (e.g. see paragraphs [0113], [0114], claims 1-4). In view of Cisar, Vyas or Appleby, the use of foamed metal bonded to a metal barrier would have been obvious to one of ordinary skill in the art for the fuel cells disclosed by applicant as prior art because Cisar, Vyas and Appleby show that this is a proven configuration for fuel cells. Applicant's disclosure of the prior art also fails to disclose the use of corrugated plate configurations, but Hill clearly shows that separator plates are "frequently patterned, such as by ribs or corrugations" for gas flow (e.g. see column 1, lines 40-48). In view of Hill, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use corrugated interconnects because Hill shows that this is a typical configuration for gas flow.

Conclusion

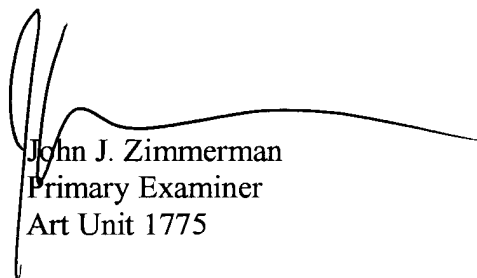
17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited prior art serves to further establish the level of ordinary skill in the art at the time the invention was made.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Deborah Jones can

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be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John J. Zimmerman
Primary Examiner
Art Unit 1775

jjz
March 21, 2005